



Complete Summary

GUIDELINE TITLE

Guidelines on critical care services and personnel: recommendations based on a system of categorization of three levels of care.

BIBLIOGRAPHIC SOURCE(S)

Haupt MT, Bekes CE, Brilli RJ, Carl LC, Gray AW, Jastremski MS, Naylor DF, Rudis M, Spevetz A, Wedel SK, Horst M. Guidelines on critical care services and personnel: recommendations based on a system of categorization of three levels of care. Crit Care Med 2003 Nov; 31(11): 2677-83. [46 references] [PubMed](#)

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INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT

CATEGORIES

IDENTIFYING INFORMATION AND AVAILABILITY

SCOPE

DISEASE/CONDITION(S)

Critical illness

GUIDELINE CATEGORY

Management

CLINICAL SPECIALTY

Critical Care
Emergency Medicine

INTENDED USERS

Hospitals

GUIDELINE OBJECTIVE(S)

To describe three levels of hospital-based critical care centers to optimally match services and personnel with community needs, and to recommend essential intensive care unit services and personnel for each critical care level

TARGET POPULATION

Hospitals with primarily adult critical care facilities

Note: Hospitals caring for critically ill children should comply with separate guidelines outlining service and personnel requirements published by the Society of Critical Care Medicine in collaboration with the American Academy of Pediatrics.

INTERVENTIONS AND PRACTICES CONSIDERED

1. Level I critical care services and personnel
2. Level II critical care services and personnel
3. Level III critical care services and personnel

MAJOR OUTCOMES CONSIDERED

Not stated

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Relevant medical literature was accessed through a systematic Medline search using the following key words: intensive care unit guidelines; intensive care levels; intensive care services; intensive care personnel; hospital care levels.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Not stated

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Consensus for the final written document was reached through collaboration in meetings and through electronic communication modalities.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

These guidelines were reviewed by the Society of Critical Care Medicine's Council.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Definition of Levels of Care

It is recommended that all hospitals determine the level of critical care services offered in keeping with their mission and goals as well as regional needs for this service. Three levels of care are proposed to accommodate university medical centers, large community hospitals, and small hospitals with limited critical care capabilities.

1. Level I critical care: These critical care centers have intensive care units (ICUs) that provide comprehensive care for a wide range of disorders requiring intensive care. They require the continuous availability of sophisticated equipment, specialized nurses, and physicians with critical care training. Support services including pharmacy services, respiratory therapy, nutritional services, pastoral care, and social services are comprehensive.

Although most of these centers fulfill an academic mission in a teaching hospital setting, some may be community hospital based.

2. Level II critical care: Level II critical care centers have the capability to provide comprehensive critical care but may not have resources to care for specific patient populations (e.g., cardiothoracic surgery, neurosurgery, trauma). Although these centers may be able to deliver a high quality of care to most critically ill patients, transfer agreements must be established in advance for patients with specific problems ("Guidelines for the transfer," 1993). The intensive care units in level II centers may or may not have an academic mission.
3. Level III critical care: Hospitals that have level III capabilities have the ability to provide initial stabilization of critically ill patients but are limited in the ability to provide comprehensive critical care. These hospitals require written policies addressing the transfer of critically ill patients to critical care centers that are capable of providing the comprehensive critical care required (level I or level II) ("Guidelines for the transfer," 1993). These facilities may continue to admit and care for a limited number of ICU patients for whom care is routine and consistent with hospital and community resources.

Cooperation between hospitals and professionals within a given region is essential to ensure that appropriate numbers of level I, II, and III units are designated. A duplication of services may lead to underutilization of resources and underdevelopment of skills by clinical personnel, and it may be costly. State and federal governments should be encouraged to enforce the appropriate distribution of critical care services within a region and to participate in the development of referral and transfer policies. Standards for interfacility transfers have been delineated in a collaborative publication by the Society of Critical Care Medicine and the American Association of Critical Care Nurses ("Guidelines for the transfer," 1993). In these standards, reference is made to federal and local laws.

Hospital Resources for Level I, II, and III Critical Care Centers

Level I Critical Care Centers

- I. Medical staff organization
 - A. A distinct critical care organizational entity (department, division, section, or service) exists.
 1. Privileges (both cognitive and procedural) for physicians practicing critical care medicine ("Guidelines for granting privileges," 1993) are approved by the Medical Staff Credentials Committee based on previous training and experience as defined by the medical staff.
 2. A section of the medical staff bylaws delineates the regulations governing the granting of critical care privileges and monitoring the critical care activities of privileged staff.
 3. Budgetary activities relating to unit function, quality assurance, and utilization review are conducted jointly by members of the medical, nursing, pharmacy, and administrative staff.
 4. A critical care representative serves on the Medical Staff Executive Committee.
 - B. The critical care services for the center are led by a critical care physician who meets the definition of an intensivist (Brilli et al., 2001)

and who has the appropriate time, expertise, and commitment to oversee the care of critically ill patients within the hospital.

- C. ICU patient management is directed by a staff level physician who fulfills all of the following:
 - 1. Is privileged by the medical staff to have clinical management responsibility for critically ill patients
 - 2. Has board certification in critical care medicine
 - 3. Sees the patient as often as required by acuity but at least twice daily
 - 4. Is either the patient's attending physician or a consultant who provides direct management of critically ill patients
- D. ICU medical staff members should participate on the institution's bioethical committee.

II. Organization of ICUs

- A. A physician director who meets guidelines for the definition of an intensivist (Brilli et al., 2001) is required.
- B. Specific requirements for the unit director include the following:
 - 1. Training, interest, and time availability to give clinical, administrative, and educational direction to the ICU.
 - 2. Board certification in critical care medicine.
 - 3. Time and commitment to maintain active and regular involvement in the care of patients in the unit.
 - 4. Expertise necessary to oversee the administrative aspects of unit management including formation of policies and procedures, enforcement of unit policies, and education of unit staff.
 - 5. The ability to ensure the quality, safety, and appropriateness of care in the ICU.
 - 6. Availability (either the director or a similarly qualified surrogate) to the unit 24 hrs a day, 7 days a week for both clinical and administrative matters.
 - 7. Active involvement in local and/or national critical care societies.
 - 8. Participation in continuing education programs in the field of critical care medicine.
 - 9. Hospital privileges to perform relevant invasive procedures.
 - 10. Active involvement as an advisor and participant in organizing care of the critically ill patient in the community as a whole.
 - 11. Active participation in the education of unit staff.
 - 12. Active participation in the review of the appropriate use of ICU resources in the hospital.
- C. A nurse manager is appointed to provide precise lines of authority, responsibility, and accountability for the delivery of high-quality patient care. Specific requirements for the nurse manager include the following:
 - 1. An RN (registered nurse) with a BSN (bachelor of science in nursing) or preferably an MSN (master of science in nursing) degree

2. Certification in critical care or equivalent graduate education
3. At least 2 yrs experience working in a critical care unit
4. Experience with health information systems, quality improvement/risk management activities, and healthcare economics
5. Ability to ensure that critical care nursing practice meets appropriate standards (Brilli et al., 2001)
6. Preparation to participate in the on-site education of critical care unit nursing staff
7. Ability to foster a cooperative atmosphere with regard to the training of nurses, physicians, pharmacists, respiratory therapists, and other personnel involved in the care of critical care unit patients
8. Regular participation in ongoing continuing nursing education
9. Knowledge about current advances in the field of critical care nursing
10. Participation in strategic planning and redesign efforts

III. Physician availability

- A. Several studies have suggested that a full-time hospital staff intensivist improves patient care and efficiency as summarized in a recent review (Brilli et al., 2001; Carlson, Weiland, & Srivathsan, 1996).
- B. Ideally, 24-hr in-house coverage should be provided by intensivists who are dedicated to the care of ICU patients and do not have conflicting responsibilities.
- C. If this ideal situation is not possible, 24-hr in-house coverage by experienced physicians (board-eligible/certified surgeons, internists, anesthesiologists, or emergency medicine physicians) who are not intensivists is acceptable when there is appropriate backup and supervision. This arrangement requires an intensivist to be on call and physically present in the hospital within 30 mins for complex or unstable patients.
- D. The intensivist should be able to return >95% of pages within 5 mins and ensure that a Fundamental Critical Care Support (FCCS) course-trained physician or physician extender (see below) reaches the ICU patient within 5 mins.
- E. Physicians (staff and/or fellows) or physician extenders covering the critical care units in-house should have advanced airway management skills and Advanced Cardiac Life Support qualifications. Training in the FCCS course sponsored by the Society of Critical Care Medicine (Fundamental Critical Care Support Course) is highly desirable.
- F. Ideal intensivist-to-patient ratios vary from ICU to ICU depending on the hospital's unique patient population. Hospitals should have guidelines for these ratios based on acuity, complexity, and safety considerations.
- G. The following physician subspecialists should be available and be able to provide bedside patient care within 30 mins:
 1. General surgeon or trauma surgeon
 2. Neurosurgeon
 3. Cardiovascular surgeon
 4. Obstetric-gynecologic surgeon
 5. Urologist

6. Thoracic surgeon
7. Vascular surgeon
8. Anesthesiologist
9. Cardiologist with interventional capabilities
10. Pulmonologist
11. Gastroenterologist
12. Hematologist
13. Infectious disease specialist
14. Nephrologist
15. Neuroradiologist (with interventional capability)
16. Pathologist
17. Radiologist (with interventional capability)
18. Neurologist
19. Orthopedic surgeon

IV. Nursing availability — see also Brill et al., 2001 for the definition of a critical care nurse and Carl, 1983 for Trauma Center Critical Care Unit nursing requirements

- A. All patient care is carried out directly by or under supervision of a trained critical care nurse.
- B. All nurses working in critical care should complete a clinical/didactic critical care course before assuming full responsibility for patient care.
- C. Unit orientation is required before assuming responsibility for patient care.
- D. Nurse-to-patient ratios should be based on patient acuity according to written hospital policies.
- E. All critical care nurses must participate in continuing education.
- F. An appropriate number of nurses should be trained in highly specialized techniques such as renal replacement therapy, intra-aortic balloon pump monitoring, and intracranial pressure monitoring.
- G. All nurses should be familiar with the indications for and complications of renal replacement therapy.

V. Respiratory care personnel requirements

- A. Respiratory care services should be available 24 hrs a day, 7 days a week.
- B. An appropriate number of respiratory therapists with specialized training must be available to the unit at all times. Ideal levels of staffing should be based on acuity, using objective measures whenever possible.
- C. Respiratory care therapists should follow guidelines specified in Appendix 5 of the ACCM's consensus report: "Critical Care Delivery in the Intensive Care Unit: Defining Clinical Roles and the Best Practice Models" (Brill et al., 2001)
- D. Therapists must undergo orientation to the unit before providing care to ICU patients.
- E. The therapist must have expertise in the use of mechanical ventilators, including the various ventilatory modes.
- F. Proficiency in the transport of critically ill patients is required.
- G. Respiratory therapists should participate in continuing education and quality improvement related to their unit activities.

- VI. Pharmacy services requirements (Rudis & Brandl, 2000; Leape et al., 1999; Dasta, 1996; Chuang, Suttan, & Henderson, 1994): Critical care pharmacy and pharmacist services are essential in the ICU. A position paper on recommendations for these services has been published by the ACCM and the American College of Clinical Pharmacy (Rudis & Brandl, 2000).
- A. A "ready to administer" (unit dose) drug distribution system, intravenous admixture services ("Factsheet: ICU physician staffing," 2000), and at a minimum a medication information system or computerized physician order entry (Bates et al., 1998) are essential.
 - B. The ability to supply immediate medications and admixtures in a timely fashion is essential. A critical care pharmacy satellite is desirable for at least part-time coverage, but full-time coverage is optimal (Rudis & Brandl, 2000).
 - C. A medication use system that creates and maintains patient medication profiles, interfaces with patient laboratory data, and alerts users to drug allergies, maximum dose limits, and drug-drug and drug-food/nutrient interactions is essential (Rudis & Brandl, 2000).
 - D. Registered pharmacists, dedicated to the ICU, should be available to evaluate all drug therapy orders, review and maintain medication profiles, monitor drug dosing and administration regimens, evaluate adverse reactions and drug/drug interactions, give drug and poison information, and provide recommendation on cost containment issues (Brilli et al., 2001; Rudis & Brandl, 2000).
 - E. Availability of a clinical pharmacist dedicated to the ICU with a specialized role in activities such as critical care therapeutics, nutritional support formulations, cardiorespiratory resuscitation therapeutics, and clinical research projects is desirable.
 - F. Pharmacists should participate regularly on rounds with the intensivist and the critical care team, provide drug therapy-related education to critical care team members, and take part in multidisciplinary quality activity committees (Rudis & Brandl, 2000; Leape et al., 1999).
 - G. Pharmacists should implement and maintain policies and procedures related to safe and effective use of medications in the ICU (Rudis & Brandl, 2000).
 - H. It is essential that the pharmacist have the qualifications and competence necessary to provide pharmaceutical care in the ICU. This may be achieved by a variety of means including advanced degrees, residencies, fellowships, or other specialized practice experience (Rudis & Brandl, 2000).
- VII. Other personnel: A variety of other personnel may contribute significantly to the efficient operation of the ICU. These include unit clerks, physical therapists, occupational therapists, advanced practice nurses, physician assistants, dietary specialists, and biomedical engineers.
- VIII. Laboratory services
- A. A clinical laboratory should be available on a 24-hr basis to provide basic hematologic, chemistry, blood gas, and toxicology analysis.
 - B. Laboratory tests must be obtained in a timely manner, immediately in some instances. "STAT" or "bedside" laboratories adjacent to the ICU or rapid transport systems (e.g., pneumatic tubes) provide an optimum and cost-effective setting for obtaining selected laboratory tests in a timely manner (Salem et al., 1991; Weil et al., 1981). Point-of-care technology may be used to obtain rapid laboratory results

(Foster, Despotis, & Scott, 2001; Lee-Lewandrowski & Lewandrowski, 2001).

- IX. Radiology and imaging services: Transport to distant non-ICU sites for radiologic procedures has been shown to be associated with changes in physiologic status that required corrective therapeutic intervention in 68% of patients (Indeck et al., 1988). Therefore, guidelines for intrafacility transfer should be followed for radiologic procedures performed distant from the ICU bedside ("Guidelines and levels of care," 1993). The following diagnostic and therapeutic radiologic procedures should be immediately available to ICU patients, 24 hrs per day.
- A. Portable chest radiographs affect decision making in critically ill patients. They lead to therapeutic changes in 66% of intubated patients and 23% of nonintubated patients (Marik & Janower, 1997).
 - B. Interventional radiologic capabilities should be available including invasive arterial and venous diagnostic and therapeutic techniques, percutaneous access to the renal collecting system and biliary tract, percutaneous gastrostomy, and percutaneous drainage of fluid collections.
 - C. Computed tomography and computed tomography angiography
 - D. Duplex Doppler ultrasonography
 - E. Magnetic resonance imaging and magnetic resonance angiography
 - F. Echocardiography (transthoracic and transesophageal)
 - G. Fluoroscopy
- X. Services provided in unit: An ICU has the capability of providing monitoring and support of the critically ill patient. To do so, the ICU is prepared to provide the following:
- A. Continuous monitoring of the electrocardiogram (with high/low alarms) for all patients (Martin & Hendrickson, 1999)
 - B. Continuous arterial pressure monitoring (invasive and noninvasive)
 - C. Central venous pressure monitoring
 - D. Transcutaneous oxygen monitoring or pulse oximetry for all patients receiving supplemental oxygen
 - E. Equipment to maintain the airway, including laryngoscopes and endotracheal tubes
 - F. Equipment to ventilate, including ambu bags, ventilators, oxygen, and compressed air
 - G. Emergency resuscitative equipment
 - H. Equipment to support hemodynamically unstable patients, including infusion pumps, blood warmer, pressure bags, and blood filters
 - I. Beds with removable headboard and adjustable position, specialty beds
 - J. Adequate lighting for bedside procedures
 - K. Suction
 - L. Hypo/hyperthermia blankets
 - M. Scales
 - N. Temporary pacemakers (transvenous and transcutaneous)
 - O. Temperature monitoring devices
 - P. Pulmonary artery pressure monitoring
 - Q. Cardiac output monitoring
 - R. Continuous and intermittent dialysis and ultrafiltration

- S. Peritoneal dialysis
 - T. Capnography
 - U. Fiber-optic bronchoscopy
 - V. Intracranial pressure monitoring
 - W. Continuous electroencephalogram monitoring capability
 - X. Positive and negative pressure isolation rooms
 - Y. Immediate access to information: medical textbooks and journals, drug information, poison control centers, personnel phone and paging numbers, personnel schedules, patient laboratory and test data, and medical record information
- XI. ICU policies and procedures: The following must be available to all ICU personnel and must be updated yearly. Many of these areas have been addressed by Guidelines and Practice Parameters Committee of the ACCM ("Physician Resources").
- A. Admission and discharge criteria and procedures
 - B. Policies for intra- and interfacility transport ("Guidelines for the transfer," 1993)
 - C. A total quality management/continuous quality improvement program is required that addresses safety, effectiveness, patient-centeredness, timeliness, efficiency, and equity as outlined by the Institute of Medicine (IOM) (Berwick, 2002). Programs should specifically address appropriate Agency for Healthcare Research and Quality indicators (Agency for Healthcare Research and Quality).
 - D. A list of hospital staff who are privileged for procedures/skills used in the ICU
 - E. End-of-life policies (e.g., documentation of "do-not-resuscitate" orders)
 - F. Guidelines for determining brain death
 - G. Organ donation protocols
 - H. Restraint and sedation protocols
- XII. Telemedicine capability: The ability to operate regional ICUs through telemedicine capabilities (eICUs, virtual ICUs) is desirable (VISICU, available at: <http://www.visicu.com>).

Level II Critical Care Centers

Level II Centers are unable to provide critical care for specific areas of expertise. For example, level II centers may lack neurosurgical expertise, a cardiac surgical program, or a trauma program. Nevertheless, these centers provide comprehensive critical care for their unique patient population. Therefore, with exception of services and personnel in the areas of expertise that they lack, these centers have the same organizational structures as outlined for level I centers. These centers require policies and procedures that address transport to a level I center when appropriate ("Guidelines for the transfer," 1993). Criteria for transfer should be specific and readily available to hospital personnel so that delays in definitive care are avoided.

Level III Critical Care Centers

Because level III centers are limited in their ability to provide comprehensive critical care, their usually small intensive care units focus on the stabilization of

patients before transfer to a comprehensive critical care center (level I or II). As a result, the guidelines outlined previously for level I and II centers, although desirable, are not always applicable. Level III centers require an on-site physician 24 hrs/day who can manage emergencies, can secure the airway, can establish rapid intravenous access, is qualified in Advanced Cardiac Life Support, and, if not subspecialty trained in critical care medicine, has taken the FCCS course ("Fundamental critical care support course"). It is desirable that level III centers address the frequency with which these educational activities are updated. It is common and acceptable for emergency physicians, anesthesiologists, general internists, and general surgeons to fulfill this role. A critical care trained nurse and respiratory therapist should be available on site, 24 hrs per day. Essential pharmacy services should be provided. With the exception of highly specialized services, basic services for stabilizing, monitoring, and treating critically ill patients (see "Services provided in unit" section above) should be available. Detailed transport policies and expertise in the transport of patients are essential for these centers ("Guidelines for the transfer," 1993). Although new and in need of additional validation, telemedicine-driven ICU care should be considered as a surrogate for on-site intensivist-driven care (VISICU, available at: <http://www.visicu.com>).

Academic vs. Nonacademic Critical Care Centers

Level I and II centers may have an academic mission through affiliation with a medical school, nursing school, or other health services educational programs. The critical care physician and nursing leadership as well as pharmacists and respiratory therapists of these centers require sufficient protected time to participate in scholarly activity (clinical and/or basic research, case reports) and to foster an environment of critical thinking. They should have the appropriate knowledge and teaching skills to participate in on-site education of critical care nursing staff, physicians in training, and staff physicians. Nonacademic centers should maintain a commitment to remaining current with changes in the field of critical care. They should encourage and provide protected time for all critical care personnel to participate in continuing education activities and maintain current certification in appropriate areas of expertise.

Open vs. Closed ICUs

Some critical care centers define their ICUs as "open" or "closed" or a combination of both types of units. In the open system, although nursing, pharmacy, and respiratory therapy staff are ICU based, the physicians directing the care of the ICU patient may have obligations at a site distant from the ICU, such as outpatient and inpatient areas and the operating room. They may or may not choose to consult an intensivist to assist in management. In some of these ICUs, critical care consultation is mandatory for all patients. In the closed system, care is provided by an ICU-based team of critical care physicians, nurses, pharmacists, respiratory therapists, and other health professionals. A variety of studies reported in the literature have documented more favorable outcomes when ICU patients are managed in a closed system compared with an open system. These studies should be interpreted cautiously (Hall, 1999).

Regardless of the type of system used, the ACCM recommends that the intensivist and the ICU patient's primary care physician and consultants proactively

collaborate in the care of all patients. In both systems, an intensivist must be given the authority to intervene and directly care for the critically ill patient in urgent and emergent situations. Ideally, all orders regarding an ICU's patient's care should be channeled through a unit-based intensivist (and his or her physician or physician extender team if applicable) to ensure optimal care and to minimize redundant or conflicting approaches to care. If these principles are followed, the distinctions between open and closed units and the divisive implications associated with the use of these terms will wither away.

Intermediate (Step-Down, Transitional) Care Units

These types of units may be useful and are dependent on types of patients served by the hospital, types of staff available to manage patients in these units, and geographic realities of the hospital's intensive care unit areas. They have advantages and disadvantages depending on whether they are freestanding in a hospital area distant from the ICU, adjacent to the ICU, or integrated within the ICU (Cheng, Byrick, & Knobel, 1999). Intermediate care units may not be appropriate for all critical care centers. Guidelines have been published by the ACCM regarding criteria for admission to these units (Nasraway et al., SCCM, 1998).

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

REFERENCES SUPPORTING THE RECOMMENDATIONS

[References open in a new window](#)

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

Recommendations were based on review of previously written guidelines from the American College of Critical Care Medicine (ACCM), published expert opinion, and statements from official organizations, published review articles, and nonrandomized, historical cohort investigations. In cases where the data did not appear conclusive, recommendations were based on the consensus opinion of the group.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Guidelines for optimal intensive care unit services and personnel for hospitals with varying resources will facilitate both local and regional delivery of consistent and excellent care to critically ill patients.

POTENTIAL HARMS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

These guidelines reflect the official opinion of the Society of Critical Care Medicine and do not necessarily reflect, and should not be construed to reflect, the views of certification bodies, regulatory agencies, or other medical review organizations.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Haupt MT, Bekes CE, Brilli RJ, Carl LC, Gray AW, Jastremski MS, Naylor DF, Rudis M, Spevetz A, Wedel SK, Horst M. Guidelines on critical care services and personnel: recommendations based on a system of categorization of three levels of care. Crit Care Med 2003 Nov; 31(11): 2677-83. [46 references] [PubMed](#)

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2003 Nov

GUIDELINE DEVELOPER(S)

Society of Critical Care Medicine - Professional Association

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Society of Critical Care Medicine (SCCM)

GUIDELINE COMMITTEE

Not stated

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the [Society of Critical Care Medicine \(SCCM\) Web site](#).

Print copies: Available from the Society of Critical Care Medicine, 701 Lee Street, Suite 200, Des Plaines, IL 60016; Phone: (847) 827-6869; Fax: (847) 827-6886; on-line through the [SCCM Bookstore](#).

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- Dorman T, Angood PB, Angus DC, Clemmer TP, Cohen NH, Durbin CG Jr, Falk JL, Helfaer MA, Haupt MT, Horst HM, Ivy ME, Ognibene FP, Sladen RN, Grenvik AN, Napolitano LM. Guidelines for critical care medicine training and continuing medical education. Crit Care Med 2004 Jan; 32(1):263-72.

Electronic copies: Available in Portable Document Format (PDF) from the [Society of Critical Care Medicine \(SCCM\) Web site](#).

Print copies: Available from the Society of Critical Care Medicine, 701 Lee Street, Suite 200, Des Plaines, IL 60016; Phone: (847) 827-6869; Fax: (847) 827-6886; on-line through the [SCCM Bookstore](#).

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on June 22, 2004. The information was verified by the guideline developer on August 9, 2004.

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The logo for FIRSTGOV, with "FIRST" in blue and "GOV" in red, and a small American flag graphic above the "I".

